



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/716,885

11/18/2003

Minoru Kumagai

03699/LH

8690

1933 7590 02/22/2008
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC
220 Fifth Avenue
16TH Floor
NEW YORK, NY 10001-7708

EXAMINER

LIN, JAMES

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

02/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/716,885	Applicant(s) KUMAGAI ET AL.	
	Examiner Jimmy Lin	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-11, 14, 16-19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-11, 14, 16-19 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/11/2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 9-10, 14, 16, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rijn et al. (WO 2002/43937) in view of Kiguchi et al. (U.S. Publication No. 2003/0024103).

Van Rijn discloses a method of making an electroluminescent (EL) display having an EL layer (i.e., an optical element) sandwiched between a first and a second electrode (pg. 19, lines 12-28). The EL material can be formed onto the substrate using a micro-printing technique (pg. 19, lines 31-34). The EL material is a light-emitting material. The micro-printing method comprises a stamp having ink attracting and ink repelling regions. The stamp is brought into contact with the substrate to transfer the droplet and to form an EL layer (pg. 25, lines 16-24; Fig. 20B). The stamp is interpreted to be the plate as required in the claims.

Van Rijn does not explicitly teach irradiating a light to a part of the wettability changeable layer so as to transform the wettability of the wettability changeable layer. However, Van Rijn does teach that plasma treatments can be used to form hydrophobic and hydrophilic regions (pg. 4, lines 40-42). Such a teaching reasonably suggests to one of ordinary skill in the art that the micro-printing stamp can be patterned into hydrophobic and hydrophilic regions to

Art Unit: 1792

confine the droplets of ink. One of ordinary skill in the art would have recognized that other methods of forming ink attracting and ink repelling regions would have been operable with predictable results. For example, Kiguchi teaches that it is well known to use a fluoroalkylsilane film to form hydrophilic and hydrophobic patterns. The film becomes hydrophilic when irradiated with UV light. A photocatalyst can be used in the film. [0050]. It would have been obvious to one of ordinary skill in the art at the time of invention to have use a fluoroalkylsilane film having a photocatalyst as taught by Kiguchi to form hydrophobic and hydrophilic patterns in the micro-printing stamp of Van Rijn with a reasonable expectation of success.

Claim 10: Van Rijn teaches that the EL material is deposited onto the first electrode.

Claim 14: Van Rijn teaches that the micro-printing technique can comprise the use of three stamps to deposit three different colors (pg. 19, lines 31-32).

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rijn '937 in view of Kiguchi '103 as applied to claim 9 above, and further in view of Aoki (U.S. Publication No. 2004/0012058).

Van Rijn and Kiguchi are discussed above, but do not explicitly teach a wettability changeable layer on the substrate having a lyophilic portion formed on each first electrode section and a liquid repellent portion formed on a portion between the plurality of first electrode sections. However, Aoki teaches that it was well known to have a plurality of first electrode sections on an EL substrate (Fig. 4) and to form a wettability changeable layer 112 on the first electrode 111 and the peripheries thereof. The portion of the wettability changeable layer over the first electrode is processed to be lyophilic by a plasma process [0088]. Because Aoki teaches that such electrode structures were operable on an EL substrate, it would have been obvious to one of ordinary skill in the art at the time of invention to have included a plurality of first electrode sections on the substrate of Van Rijn. Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed a wettability changeable layer on the first electrode of Van Rijn and to have made the layer over the first electrode lyophilic through a plasma processing method with a reasonable expectation of success because Aoki teaches that such methods were operable with solution deposition of EL material,. The selection of something based on its known suitability for its intended use has been held to support a prima

Art Unit: 1792

facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). The portions of the wettability changeable layer at the periphery of the first electrode are liquid repellent with respect to the portions of the layer exposed to plasma processing.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rijn '937 in view of Kiguchi '103 as applied to claim 9 above, and further in view of Suda (U.S. Patent No. 6,851,364).

Van Rijn and Kiguchi are discussed above, but do not explicitly teach that the wettability changeable layer has a silazane compound having a fluoroalkyl group. However, Suda teaches that such a compound is capable of having its wettability changed with an exposure to UV light (abstract; col. 19, line 43-col. 20, line 15). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a silazane compound having a fluoroalkyl group in the printing plate of Van Rijn and Kiguchi with a reasonable expectation of success because Suda teaches that hydrophilic and hydrophobic patterns can be formed using such a compound. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rijn '937 in view of Kiguchi '103 as applied to claim 9 above, and further in view of Kimura et al. (U.S. Publication No. 2002/0075422).

Van Rijn and Kiguchi are discussed above, but do not explicitly teach a partition surrounding the electrodes on the substrate. However, Kimura teaches that it is well known to use a partition to surround the coating position, wherein the coating position can be the electrode, to prevent spreading of the deposited ink ([0138]; Fig. 10). The deposition process of Van Rijn is intended to discharge materials into a desired area while not discharging materials onto undesired areas (Figs. 20A-20C). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used partitions to surround the electrodes of Van Rijn

with a reasonable expectation of success. One would have been motivated to do so in order to have further confined the ink droplets of Van Rijn onto the substrate.

Response to Arguments

7. Applicant's arguments filed 1/11/2008 have been fully considered but they are not persuasive.

Applicant argues on pg. 11 that it is not proper to select teaching out of context for combining them. Applicant further argues that the patterning technology of the inkjet as shown in Kiguchi is totally different from the printing technology shown in Van Rijn in terms of category, structure and usage and that it is not obvious to look to Kiguchi to select teaching for combination with Van Rijn. However, Kiguchi is looked at in the context of forming a pattern of hydrophobic and hydrophilic regions because the teachings of Van Rijn and Kiguchi are related in that manner. Although Van Rijn does not teach forming the pattern by irradiation of a light, one of ordinary skill in the art would have recognized that other methods of forming such patterns would have been operable, especially in view of Kiguchi. It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Kiguchi solves the problem of forming patterns of hydrophobic and hydrophilic regions.

Applicant argues on pg. 11-12 that even if Kiguchi and Van Rijn are combined, there is no teaching that light is irradiated onto a to-be-transferred plate to change the wettability of the wettability changeable layer and to coat the substrate with an optical material containing liquid and that the droplet is transferred to the substrate by the coated plate. However, all the claim limitations are taught in the cited references. See above discussion for details.

Applicant argues on pg. 13 that the invention of Kimura is different from the present invention in that the portion onto which light is irradiated has a liquid repellency characteristic, which is opposite to the lyophilic characteristics of the present invention. However, Kimura does teach the step of enhancing lyophilicity at an area where the EL material is to be deposited.

Art Unit: 1792

Nevertheless, the teachings of Aoki have been added to the ground of rejection because Aoki provides a better teaching of forming a wettability changeable layer on the first electrode.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is (571)272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1792

/Jimmy Lin/
Examiner, Art Unit 1792